

B1
7. (New) The storage device of claim 4, wherein the high-level error correction code unit detects and, when necessary, corrects an error in the data storage area that corresponds to a plurality of physical addresses.

8. (New) The storage device of claim 4 wherein both the drive and the host are configured to detect and, when necessary, correct errors in data in a common sector.

9. (New) The storage device of claim 4 wherein the read mechanism comprises a read/write mechanism.

REMARKS

Marked up revisions of the claims is provided in Appendix A. Dictionary definitions are provided in Appendix B.

I. 35 U.S.C. § 102.

The pending claims are directed to a storage device having a low-level error correction code unit ("low-level ECC unit") within a drive and a high-level error correction code unit ("high-level ECC unit") within a host. The error correction code units allow data that is being read or transmitted to be checked for errors and, when necessary, corrected on the fly. The low-level ECC unit detects, and when necessary, corrects errors in data written to a single sector,¹ which has a fixed size that is capable of holding 512 bytes of information. The high-level ECC unit detects, and when necessary, corrects errors within data read from more than one sector of a disk.

The Nasu reference relates to an error correcting process in a data reading operation of a floppy disk drive. A C1 correction is performed on 256 byte data, or one half of a floppy disk sector and a C2 correction is performed on 512 bytes of data, or one floppy disk sector. See Nasu col. 1:36 - 46; col. 5:36 - 44; col. 7:33 - 49. col. 4:38 - 52;

¹ A sector is a portion of a data storage area on a disk. Sectors are the smallest physical storage units on a disk and are of fixed size; typically, they are capable of holding 512 bytes of information. *Microsoft® Bookshelf® Computer and Internet Dictionary*© 1997 Microsoft Corporation attached within Appendix B; also see *Application*, page 9.

see also Appendix. B. The reference does not disclose a low-level and a high level ECC unit that checks for errors, and when necessary, corrects errors in a single sector using a disk drive and in multiple sectors using a host. Accordingly, the Nasu reference does not anticipate the pending claims. Accordingly, Applicants respectfully request withdrawal of this rejection.

V. - VI. 35 U.S.C. § 103.

As explained, the pending claims are directed to a storage device having a low-level ECC unit within a drive and a high-level ECC unit within a host. The low-level ECC unit detects, and when necessary, corrects errors in data written to a single sector. The high-level ECC unit detects, and when necessary, corrects errors in data read from more than one sector of a disk.

The Hogan reference and the Examiner's personal knowledge describe a method and apparatus for performing data encryption and error code correction. The disclosure describes a partial and a full correction of error correction code words themselves. Hogan col. 3:27 - 30. Hogan further describes a disk drive "having a basic error correction capability." Hogan col. 4:66 - col. 5:7. When the disk drive cannot correct a data block, it is sent to the host computer for error correction. *Id.* Hogan does not disclose a low-level ECC unit in a drive that corrects errors in data read from a single sector and a high-level ECC unit in a host that corrects errors in data read from multiple sectors.

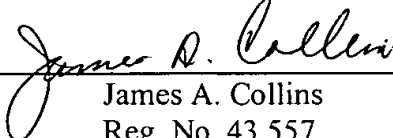
Furthermore, the Official Action admits, Hogan does not "specify that the drive's on-the-fly ECC process be performed one block at a time while the host's ECC process be performed over multiple blocks at a time." *Paper 6, pg. 3*. Accordingly, the Hogan reference alone or in combination with the Examiner's personal knowledge does not teach the claimed subject matter. Accordingly, Applicants respectfully requests withdrawal of this rejection.

Applicants also respectfully request an affidavit from the Examiner to support the rejections supported by each Official Notice referred to in the action according to MPEP 707.05 at 700 - 88 and 37 CFR 104 (d)(2).

V. Conclusion.

In view of the remarks and amendments above, Applicants respectfully submit that the claims are in condition for allowance. If any issues remain, Applicants request that the Examiner call the undersigned to expedite the prosecution of the application.

Respectfully submitted,


James A. Collins
Reg. No. 43,557
Attorney for Applicants

BRINKS HOFER GILSON & LIONE
P.O. BOX 10395
Chicago, IL 60610
(312) 321-4200

APPENDIX A

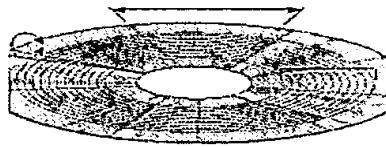
1. (Amended) A disk device comprising:
 - a disk drive including a head for reading data written to a disk and a processing circuit for processing the data; and
 - a host computer connected to said disk drive through an interface;
 - wherein the processing circuit of said disk drive includes a low-level error-correction code unit for performing error correction of the data written to a physical address corresponding to a single sector of the disk ~~in units of one block~~; and
 - the host computer includes a high level error correction code unit for performing error correction of the read data supplied through the interface ~~in units of plurality of blocks~~ and read from more than one sector of the disk.

APPENDIX B

sector *sector (sek'ter) noun*

A portion of the data storage area on a disk. A disk is divided into sides (top and bottom), tracks (rings on each surface), and sectors (sections of each ring).

Sectors are the smallest physical storage units on a disk and are of fixed size; typically, they are capable of holding 512 bytes of information apiece.²



[Click image to enlarge](#)

²Microsoft® Bookshelf® Computer and Internet Dictionary© 1997 Microsoft Corporation. All rights reserved.